Data Modelling in Information System Selection and Evaluation: New Directions for a Canadian Hospital

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MODELLING

A Data Model (DM) is a blueprint of an enterprise based on the objects (or data entities) of that enterprise and their interactions (or business rules associated with these objects). A Process Model (PM) is a representation of what the enterprise does and how processes are interrelated through flows. Both models consist of a graphical description supported by textual documentation. The models are hardware and software independent. Many software packages have automated the drawing and organization of models.

ADVANTAGES OF MODELLING

Data and processes are seen as patient-centered, not database-centered.

Business-driven, hence independent of application, system, database management system and technology.

Facilitates business re-engineering.

Organization-wide view of data (information as a shared resource)

Avoids stovepipe (traditional department or work unit) mindset.

Facilitates clearer definition of scope and communication.

For data, identifies how each element adds value, ensures unique normalized elements, ensures collected only once.

By decreasing data redundancy, it facilitates data maintenance and produces more stable physical data model (database).

Early involvement by end-users:

Caregiver-driven.

Requires user consensus.

Encourages communication within and across peer groups

Facilitates early user buy-in.

The challenges in modelling include (1) the technique is new to most healthcare institutions and hence requires a change in mindset and considerable education and commitment; (2) users may perceive that the process is slow at the startup (3) it requires time and commitment from many end-users; (4) the detail to which the models need to be driven is not obvious; and (5) vendors do not have comparable models.

IMPLEMENTATION AT CGH

At our large, teaching, tertiary, acute care, two-site hospital, modelling was a keystone in the Patient Care System Project (PCSP), jointly managed by a physician and a nurse. We describe our System Delivery Life Cycle (SDLC).

SDLC stage	*DM/PM process*
Plan	Adopt DM approach
	Define core group
	Create infrastructure
	Create high level model
	Scope project
	Create subprojects
System analysis	Create (target) detailed DM/PM
Package acquire	RFI/RFP
	Compare target & vendor models
Implement	
Evaluate/monitor	

A "core group" was assembled to guide selection and implementation and to develop a high-level model. Members were selected to (1) be end-users respected by their peers, (2) have a good understanding of the institution, (3) be willing to accept and implement change (4) be able to discuss openly and problem solve effectively as a group. The core group created the high-level model which formed the nucleus of a Request for Information (RFI). This group developed relative weightings for system selection against which to score vendor responses to the target model and other criteria (e.g.. user interface).

Subprojects were created directly from the model. Several subprojects worked in parallel to drive down the model to a "target" model detailed to issue a Request for Proposal (RFP).

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